

#3 0280  
02/09/01  
OPIPE

RAW SEQUENCE LISTING DATE: 02/09/2001  
PATENT APPLICATION: US/09/772,105 TIME: 11:06:59

Input Set : A:\SEQ LIST 0838.1001-009.txt  
Output Set: N:\CRF3\02092001\I772105.raw

3 <110> APPLICANT: Ozelius, Laurie J.  
4 Breakfield, Xandra O.  
6 <120> TITLE OF INVENTION: TORSIN, TORSIN-RELATED GENES, AND  
7 METHODS OF DETECTING NEURONAL DISEASES  
9 <130> FILE REFERENCE: 0838.1001009  
C--> 11 <140> CURRENT APPLICATION NUMBER: US/09/772,105  
C--> 12 <141> CURRENT FILING DATE: 2001-01-26  
14 <150> PRIOR APPLICATION NUMBER: US 09/218,363  
15 <151> PRIOR FILING DATE: 1998-12-22  
17 <150> PRIOR APPLICATION NUMBER: US 09/099,454  
18 <151> PRIOR FILING DATE: 1998-06-18  
20 <150> PRIOR APPLICATION NUMBER: US 60/050,244  
21 <151> PRIOR FILING DATE: 1997-06-19  
23 <160> NUMBER OF SEQ ID NOS: 90  
25 <170> SOFTWARE: FastSEQ for Windows Version 4.0  
27 <210> SEQ ID NO: 1  
28 <211> LENGTH: 2597  
29 <212> TYPE: DNA  
30 <213> ORGANISM: Homo sapien  
32 <220> FEATURE:  
33 <221> NAME/KEY: CDS  
34 <222> LOCATION: (568)...(1563)  
36 <221> NAME/KEY: misc\_feature /  
37 <222> LOCATION: (1)...(2597)  
38 <223> OTHER INFORMATION: n = A, T, C or G  
40 <400> SEQUENCE: 1  
W--> 41 ctgaaaatag ctnttttata ttatttttat tattttttt atttgcggga gggagcacag 60  
W--> 42 tcttgctctg tctcccaaggc tggagntgca gtggtagat ctcggctcac tgcaatctcc 120  
W--> 43 gcctccttggg ttcaagngca gttgtctatg tgcacgcctc cccagtagct agggctacag 180  
44 gtgcctacca ccacacccgc taattttata ttttttagtag agacgtgggt tcaccatgtt 240  
W--> 45 ggtagggctg gtctcgaaact cctgacactca ggtgatccgc ccnccctcagec ctnccccaaag 300  
W--> 46 ggctgggatt acaggccagg gccacccatnc ctggaaaaaa taacgtccat aaacaaaaaac 360  
47 acgtggccaa caggccggag cagaaccggat ttccggaaag caaaacccggg ctttgttaccg 420  
48 aacaaggatg gcccgcgcgc qcgltccggag gagggctgcc ctgaagaaag atggccctccg 480  
W--> 49 cgagaggagg aancccgaag cgtgggtctg gcggtgcac eggttcgcgg tcggccgcgag 540  
50 aacaaggcagg gtggccgcggg tccgggc'atg aag ctg ggc cgg gcc qtg ctg ggc 594  
Met Lys Leu Gly Arg Ala Val Leu Gly  
51 1 5  
52  
54 ctg ctg ctg ggc tcc gtg gtg cag ggc gtc acc ggc tac atc lac ccc atc agc 642  
55 Leu Leu Leu Ala Pro Ser Val Val Gln Ala Val Glu Pro Ile Ser  
56 10 15 20 25  
58 ctg gga ctg gcc ctg ggc gtc ctc acc ggc tac atc lac ccc cgt 690  
59 Leu Gly Leu Ala Leu Ala Gly Val Leu Thr Gly Tyr Ile Tyr Pro Arg  
60 30 35 40  
62 ctc tac tgc ctc ttc gcc gag tgc tgc ggg cag aag cgg agc ctt agc 738  
62 ctc tac tgc ctc ttc gcc gag tgc tgc ggg cag aag cgg agc ctt agc 738  
63 Leu Tyr Cys Leu Phe Ala Glu Cys Cys Gly Gln Lys Arg Ser Leu Ser  
64 45 50 55

ENTERED

See p.5

RAW SEQUENCE LISTING  
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|     |   |      |
|-----|---|------|
| 66  | cgg gag gca ctg cag aag gat ctg gac gac aac ctc ttt gga caq cat     | 786  |
| 67  | Arg Glu Ala Leu Gln Lys Asp Leu Asp Asp Asn Leu Phe Gly Gln His     |      |
| 68  | 60 65 70  | 834  |
| 70  | ctt gca aag aaa atc atc tta aat gcc gtg ttt ggt ttc ata aac aac     |      |
| 71  | Leu Ala Lys Lys Ile Ile Leu Asn Ala Val Phe Phe Ile Asn Asn         |      |
| 72  | 75 80 85  | 882  |
| 74  | cca aag ccc aag aaa cct ctc acg ctc tcc ctg cac ggg tgg aca ggc     |      |
| 75  | Pro Lys Pro Lys Lys Pro Leu Thr Leu Ser Leu His Gly Trp Thr Gly     |      |
| 76  | 90 95 100 105   |      |
| 78  | acc ggc aaa aat ttc gtc agc aag atc atc gca gag aat att tac gag     | 930  |
| 79  | Thr Gly Lys Asn Phe Val Ser Lys Ile Ile Ala Glu Asn Ile Tyr Glu     |      |
| 80  | 110 115 120   | 978  |
| 82  | ggt ggt ctg aac agt qac tat gtc cac ctg ttt gtg gcc aca ttg cac     |      |
| 83  | Gly Gly Leu Asn Ser Asp Tyr Val His Leu Phe Val Ala Thr Leu His     |      |
| 84  | 125 130 135   |      |
| 86  | ttt cca cat gct tca aac atc acc ttg tac aag gat cag tta cag ttg     | 1026 |
| 87  | Phe Pro His Ala Ser Asn Ile Thr Leu Tyr Lys Asp Gln Leu Gln Leu     |      |
| 88  | 140 145 150   | 1074 |
| 90  | tgg att cga ggc aac gtg agt gcc tgt gcg agg tcc atc ttc ata ttt     |      |
| 91  | Trp Ile Arg Gly Asn Val Ser Ala Cys Ala Arg Ser Ile Phe Ile Phe     |      |
| 92  | 155 160 165   | 1122 |
| 94  | gat gaa atg gat aag atg cat gca ggc ctc ata gat gcc atc aag cct     |      |
| 95  | Asp Glu Met Asp Lys Met His Ala Gly Leu Ile Asp Ala Ile Lys Pro     |      |
| 96  | 170 175 180 185   |      |
| 98  | ttc ctc gac tat tat qac ctg gtg gat ggg gtc tcc tac cag aaa gcc     | 1170 |
| 99  | Phe Leu Asp Tyr Tyr Asp Leu Val Asp Gly Val Ser Tyr Gln Lys Ala     |      |
| 100 | 190 195 200   |      |
| 102 | atg ttc ata ttt ctc agc aat gct gga gca gaa agg atc aca gat gtg     | 1218 |
| 103 | Met Phe Ile Phe Leu Ser Asn Ala Gly Ala Glu Arg Ile Thr Asp Val     |      |
| 104 | 205 210 215   | 1266 |
| 106 | gct ttg gat ttc tgg agg agt gga aag cag cag agg gaa gac atc aag ctc |      |
| 107 | Ala Leu Asp Phe Trp Arg Ser Gly Lys Gln Arg Glu Asp Ile Lys Leu     |      |
| 108 | 220 225 230   |      |
| 110 | aaa gac att gaa cac gcg ttg tct gtg tcg gtt ttc aat aac aag aac     | 1314 |
| 111 | Lys Asp Ile Glu His Ala Leu Ser Val Ser Val Phe Asn Asn Lys Asn     |      |
| 112 | 235 240 245   | 1362 |
| 113 | agt ggc ttc tgg cac agc agc tta att gac cgg aac ctc att gat tat     |      |
| 114 | Ser Gly Phe Trp His Ser Ser Leu Ile Asp Arg Asn Leu Ile Asp Tyr     |      |
| 115 | 250 255 260 265   | 1410 |
| 117 | ttt gtt ccc ttc ctc ccc ctg gaa tac aaa cac cta aaa atg tgt atc     |      |
| 118 | Phe Val Pro Phe Leu Pro Leu Glu Tyr Lys His Leu Lys Met Cys Ile     |      |
| 119 | 270 275 280   |      |
| 121 | cga gtg gaa atg cag tcc cga ggc tat gaa att gat gaa gac att gta     | 1458 |
| 122 | Arg Val Glu Met Gln Ser Arg Gly Tyr Glu Ile Asp Glu Asp Ile Val     |      |
| 123 | 285 290 295   | 1506 |
| 125 | agc aga gtg gct gag gag atg aca ttt ttc ccc aaa gag gag aga gtt     |      |
| 126 | Ser Arg Val Ala Glu Glu Met Thr Phe Phe Pro Lys Glu Glu Arg Val     |      |
| 127 | 300 305 310   |      |
| 129 | ttc tca gat aaa ggc tgc aaa acg gtg ttc acc aag tta gat tat tac     | 1554 |

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130 Phe Ser Asp Lys Gly Cys Lys Thr Val Phe Thr Lys Leu Asp Tyr Tyr  
 131 315 320 325 1603  
 133 tac gat gat/tgacagtcat gattggcage cggaggtaact gcctggagtt  
 134 Tyr Asp Asp  
 135 330  
 137 ggaaaagaaa caaacatcg tccttcaca ctteccacccc cagtccttt cccttggaga 1663  
 138 ggaatccagt gaatgttct gtttgatgtg acaggaattc tcctggcat tgtttccacc 1723  
 139 ccctgggtgc tgcaggccac ccaggacca cgggcgagga cgtgaacac 1783  
 140 cacagaagga aggagccgc teccagccca ctcatcgac ggtctcatgt tttttacaaa 1843  
 141 ttatgtttta attccaatgt ttctgtttc aaggaaaggat gaataagttt tattgaaaat 1903  
 142 gtggtaactt tatttaaat gatttttaac attatgagag actgtctcaga ttcttaatgt 1963  
 143 ttggccttgt gtgtgtttt ttttttaatgt tttcatattt attacataga ctgtgaagta 2023  
 144 tctttactgg aatgagccc aagcacatc gcatggcatt ttttgcattt caggaggc 2083  
 145 tccctgggaa tgggtgttgc gcatggcattt gcttgcattt aggtggcc caggcgatgc 2143  
 146 tggcaggggc aytgaatgt ttagttaatgtt aacaaatgtt taaggaggacy ctttcaggca 2203  
 147 ccacatcaa gctgttcaaa qggtttcac ctttgcattt atggagctg 2263  
 148 tgggatgtat tttggccaca ctgtcaatc ttttgcattt aatggaaaatg 2323  
 149 atttccaaatgt ttttgcattt ctttgcattt aatggaaaatg 2383  
 150 ttccaaatag cccacacgtt ctctgtgtt gatttcaatc ttttgcattt 2443  
 151 aaatcttctt catttataactt atttttgtt acgttcaatc agaatccccg aaaccttcta 2503  
 152 taaagcttag ctggcccttc tgaggatgtt gagaacgggtt tttttttttaaaatgcaaa 2563  
 153 tggcttaccgt ttttacatataa aattttgcattt gtgc 2597  
 155 <210> SEQ ID NO: 2  
 156 <211> LENGTH: 332  
 157 <212> TYPE: PRT  
 158 <213> ORGANISM: Homo sapien  
 160 <400> SEQUENCE: 2  
 161 Met Lys Leu Gly Arg Ala Val Leu Gly Leu Leu Leu Leu Ala Pro Ser  
 162 1 5 10 15  
 163 Val Val Gln Ala Val Glu Pro Ile Ser Leu Gly Leu Ala Leu Ala Gly  
 164 20 25 30  
 165 Val Leu Thr Gly Tyr Ile Tyr Pro Arg Leu Tyr Cys Leu Phe Ala Glu  
 166 35 40 45  
 167 Cys Cys Gly Gln Lys Arg Ser Leu Ser Arg Glu Ala Leu Gln Lys Asp  
 168 50 55 60  
 169 Leu Asp Asp Asn Leu Phe Gly Gln His Leu Ala Lys Ile Ile Leu  
 170 65 70 75 80  
 171 Asn Ala Val Phe Gly Phe Ile Asn Asn Pro Lys Pro Lys Pro Leu  
 172 85 90 95  
 173 Thr Leu Ser Leu His Gly Trp Thr Gly Thr Gly Lys Asn Phe Val Ser  
 174 100 105 110  
 175 Lys Ile Ile Ala Glu Asn Ile Tyr Glu Gly Gly Leu Asn Ser Asp Tyr  
 176 115 120 125  
 177 Val His Leu Phe Val Ala Thr Leu His Phe Pro His Ala Ser Asn Ile  
 178 130 135 140  
 179 Thr Leu Tyr Lys Asp Gln Leu Gln Leu Trp Ile Arg Gly Asn Val Ser  
 180 145 150 155 160  
 181 Ala Cys Ala Arg Ser Ile Phe Ile Phe Asp Glu Met Asp Lys Met His  
 182 165 170 175

RAW SEQUENCE LISTING DATE: 02/09/2001  
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Input Set : A:\SEQ\_LIST\_0838.1001-009.txt  
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Input Set : A:\SEQ LIST 0838.1001-009.txt  
 Output Set: N:\CRF3\02092001\I772105.raw

|   |   |   |      |
|---|---|---|------|
| 237   | 1 | 5 |      |
| 239 ccg agt gct gcc ggc gag gag ccg ctc aac gct tcg gct ctc aag     |   |   | 1062 |
| 240 Pro Ser Ala Ala Gly Glu Glu Arg Pro Leu Asn Ala Ser Ala Leu Lys |   |   |      |
| 241 10 15 20  |   |   |      |
| 243 ctg gat ttg gag gag aag ctg ttt gga cag cat cta gcc acy gaa gtg |   |   | 1110 |
| 244 Leu Asp Leu Glu Glu Lys Leu Phe Gly Gln His Leu Ala Thr Glu Val |   |   |      |
| 245 25 30 35  |   |   |      |
| 247 att ttc aag gcg ctg act ggc ttc agg aac aac aaa aat ccc aag aaa |   |   | 1158 |
| 248 Ile Phe Lys Ala Leu Thr Gly Phe Arg Asn Asn Lys Asn Pro Lys Lys |   |   |      |
| 249 40 45 50 55   |   |   |      |
| 251 cca ctg acc ctt tcc tta cac ggc tgg gct ggc aca ggc aag aat ttt |   |   | 1206 |
| 252 Pro Leu Thr Leu Ser Leu His Gly Trp Ala Gly Thr Gly Lys Asn Phe |   |   |      |
| 253 60 65 70  |   |   |      |
| 255 gtc agt caa att gtg gct gaa aat ctt cac cca aaa ggt ctg aag agt |   |   | 1254 |
| 256 Val Ser Gln Ile Val Ala Glu Asn Leu His Pro Lys Gly Leu Lys Ser |   |   |      |
| 257 75 80 85  |   |   |      |
| 259 aac ttt gtc cac ctg ttt gta tcg act ctg cac ttc cct cat gag cag |   |   | 1302 |
| 260 Asn Phe Val His Leu Phe Val Ser Thr Leu His Phe Pro His Glu Gln |   |   |      |
| 261 90 95 100   |   |   |      |
| 263 aag ata aaa ctg tac cag gag cag tta cag aag tgg atc cgc ggt aat |   |   | 1350 |
| 264 Lys Ile Lys Leu Tyr Gln Asp Gln Leu Gln Lys Trp Ile Arg Gly Asn |   |   |      |
| 265 105 110 115   |   |   |      |
| 267 gtg agt gca tgt gcg aac tct gtt ttc ata ttt gac gag atg gat aaa |   |   | 1398 |
| 268 Val Ser Ala Cys Ala Asn Ser Val Phe Ile Phe Asp Glu Met Asp Lys |   |   |      |
| 269 120 125 130 135   |   |   |      |
| 271 ttg cac ccc ggg atc att gac gca atc aag ccg ttt cta gac tac tac |   |   | 1446 |
| 272 Leu His Pro Gly Ile Ile Asp Ala Ile Lys Pro Phe Leu Asp Tyr Tyr |   |   |      |
| 273 140 145 150   |   |   |      |
| 275 gag cag gtt gac gga gtg tct tac cgc aaa gcc atc ttc atc ttt ctc |   |   | 1494 |
| 276 Glu Gln Val Asp Gly Val Ser Tyr Arg Lys Ala Ile Phe Leu         |   |   |      |
| 277 155 160 165   |   |   |      |
| 279 agc aat gca ggc ggg gac ctt ata act aag acg gct ctt gac ttt tgg |   |   | 1542 |
| 280 Ser Asn Ala Gly Gly Asp Leu Ile Thr Lys Thr Ala Leu Asp Phe Trp |   |   |      |
| 281 170 175 180   |   |   |      |
| 283 cgg gcc gga aga aag agg gaa gac att cag ctg aag gac ctg gaa cct |   |   | 1590 |
| 284 Arg Ala Gly Arg Lys Arg Glu Asp Ile Gln Leu Lys Asp Leu Glu Pro |   |   |      |
| 285 185 190 195   |   |   |      |
| 287 gta ctg tct gtc gga gtc ttc aat aat aaa cac agt ggc ctg tgg cac |   |   | 1638 |
| 288 Val Leu Ser Val Gly Val Phe Asn Asn Lys His Ser Gly Leu Trp His |   |   |      |
| 289 200 205 210 215   |   |   |      |
| 291 agt gga ctg atc gac aaa aac ctc att gat tac ttt atc ccc ttc ctg |   |   | 1686 |
| 292 Ser Gly Leu Ile Asp Lys Asn Leu Ile Asp Tyr Phe Ile Pro Phe Leu |   |   |      |
| 293 220 225 230   |   |   |      |
| 295 cct ttg gag tac aga cat gtg aaa atg tgt gtg agg gcc gag atg agg |   |   | 1734 |
| 296 Pro Leu Glu Tyr Arg His Val Lys Met Cys Val Arg Ala Glu Met Arg |   |   |      |
| 297 235 240 245   |   |   |      |
| 299 gcc cgt ggt tct gcc ata gat gaa gac att gtc aca aga gtg gca gag |   |   | 1782 |
| 300 Ala Arg Gly Ser Ala Ile Asp Glu Asp Ile Val Thr Arg Val Ala Glu |   |   |      |
| 301 250 255 260   |   |   |      |

**Please Note:**

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

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Input Set : A:\SEQ LIST 0838.1001-009.txt  
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L:11 M:270 C: Current Application Number differs, Replaced Current Application Number  
L:12 M:271 C: Current Filing Date differs, Replaced Current Filing Date  
L:41 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1  
L:42 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1  
L:43 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1  
L:45 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1  
L:46 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1  
L:49 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1  
L:222 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3  
L:223 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3  
L:224 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3  
L:229 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3  
L:231 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3  
L:779 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:10  
L:907 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:13  
L:923 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:13  
L:1056 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:17  
L:1151 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:20  
L:1466 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:48  
L:1484 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:49  
L:1486 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:49  
L:1502 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:50  
L:1503 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:50  
L:1505 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:50  
L:1506 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:50  
L:1507 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:50  
L:1525 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:51  
L:1526 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:51  
L:1527 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:51  
L:1528 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:51  
L:1529 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:51  
L:1566 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:53  
L:1568 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:53  
L:1603 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:55  
L:1604 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:55  
L:1621 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:56  
L:1622 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:56  
L:1659 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:57  
L:1675 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:58  
L:1676 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:58  
L:1678 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:58  
L:1696 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:59  
L:1735 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:61  
L:1736 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:61  
L:1751 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:62  
L:1753 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:62  
L:1755 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:62  
L:1756 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:62

**VERIFICATION SUMMARY** DATE: 02/09/2001  
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L:1775 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:63  
L:1807 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:65  
L:1827 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:66  
L:2082 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:88